

Claims:

1 ~~25.~~ A laser beam ophthalmological surgery method for
 2 treating presbyopic in a patient's eye by ablating the sclera
 3 comprising the steps of:
 4 selecting a pulsed ablation laser having a pulsed output beam
 5 of predetermined wavelength;
 6 selecting a beam spot controller mechanism for reducing and
 7 focusing said selected ablative laser's output beam onto a
 8 predetermined spot size on the surface of the cornea;
 9 selecting a scanning mechanism for scanning said ablative laser
 10 output beam;
 11 coupling said ablative laser beam to a scanning device for
 12 scanning said ablative laser over a predetermined area of the
 13 corneal sclera; and
 14 controlling said scanning mechanism to deliver said ablative
 15 laser beam in a predetermined pattern in said predetermined area
 16 onto the surface of the cornea to photoablate the sclera tissue
 17 outside the limbus, whereby a presbyopic patient's vision is
 18 corrected by expansion of the sclera.

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1 ~~26.~~ A laser beam ophthalmological surgery method for
 2 treating presbyopic in a patient's eye by ablating the sclera in
 3 accordance with claim ~~25~~ in which the step of selecting a pulsed
 4 ablation laser includes selecting a pulsed ablative laser having a
 5 predetermined wavelength between 0.15 - 0.32 microns.

6 ~~3~~ ~~27.~~ A laser beam ophthalmological surgery method for
 7 treating presbyopic in a patient's eye by ablating the sclera in
 8 accordance with claim ~~25~~ in which the step of selecting a pulsed
 9 ablation laser includes selecting a pulsed ablative laser having a
 10 wavelength between 2.6 and 3.2 microns.

1 ~~4~~ ~~28.~~ A laser beam ophthalmological surgery method for
 2 treating presbyopic in a patient's eye by ablating the sclera in
 3 accordance with claim ~~25~~ in which the step of selecting a pulsed
 4 ablation laser includes selecting a solid state laser.

1 ~~6~~ ~~29.~~ A laser beam ophthalmological surgery method for
 2 treating presbyopic in a patient's eye by ablating the sclera in
 3 accordance with claim ~~25~~ in which the step of selecting a pulsed

1 ablation laser includes selecting a pulsed gas laser having a pulse
2 duration shorter than 200 nanoseconds.

1 ~~30.~~ A laser beam ophthalmological surgery method for
2 treating presbyopic in a patient's eye by ablating the sclera in
3 accordance with claim ~~25~~ in which said the step of selecting a beam
4 spot controller includes selecting a pulsed ablative laser having
5 a focusing lens with focal length of between 10 and 100 cm selected
6 to obtain a predetermined laser beam spot size having a diameter of
7 between 0.1 and 0.8 mm on the corneal surface.

1 ~~31.~~ A laser beam ophthalmological surgery method for
2 treating presbyopic in a patient's eye by ablating the sclera in
3 accordance with claim ~~25~~ in which the step of selecting a beam spot
4 controller includes selecting beam spot controller having a
5 focusing lens with cylinder focal length of between 10 and 100 cm
6 to obtain a laser beam spot having a line size of about 0.1-0.8 mm
7 x 3-5 mm on the corneal surface.

1 ~~32.~~ A laser beam ophthalmological surgery method for
2 treating presbyopic in a patient's eye by ablating the sclera in
3 accordance with claim ~~25~~ in which the step of selecting a scanning
4 mechanism includes selecting a scanning mechanism having a pair of
5 reflecting mirrors mounted to a galvanometer scanning mechanism for
6 controlling said laser output beam into a predetermined pattern.

1 ~~33.~~ A laser beam ophthalmological surgery method for
2 treating presbyopic in a patient's eye by an ablating laser beam in
3 accordance with claim ~~25~~ in which said ablative laser is delivered
4 to the surface of the cornea by an optical fiber.

11 ~~34.~~ A laser beam ophthalmological surgery method for
12 treating presbyopic in a patient's eye by ablating the sclera in
13 accordance with claim ~~25~~ in which the step of selecting a scanning
14 mechanism includes selecting a hand-held optical fiber coupled to
15 the ablation laser for scanning said laser output beam into a
16 predetermined pattern.

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